GEOGRAPHIC SCHOOL BULLETINS

THE NATIONAL GEOGRAPHIC SOCIETY, WASHINGTON 6, D.C.

VOLUME XXXVII, NUMBER 1, OCTOBER 6, 1958 . . . *To Know This World, Its Life*

JUSTIN LOCKE

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- Your Friend, the Atom
- Formosa Strait
- Blue Ridge Parkway
- Nova Scotia Remembers
- DeGaulle's Frenchmen

OUR 37TH YEAR of bringing the world to your classroom begins with this issue. Next week: the Near East. In the future: Alaska . . . Theodore Roosevelt . . . Peru . . . expanded science coverage . . . Africa's Lake Victoria . . . Trade fairs.

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NATIONAL GEOGRAPHIC PHOTOGRAPHER B. ANTHONY STEWART

BIOLOGISTS set plants in circles around a container of radioactive cobalt at Upton, Long Island. Bombardment in this garden produces new plant strains, most worthless, some highly useful. Here cacti, African violets, and orchids receive treatment.

THOMAS J. ABERCROMBIE, NATIONAL GEOGRAPHIC STAFF

nuclear power plants become perfected.

Fusion Energy: When atoms fuse, or join together, far more power results than that released by the fission, or splitting process. Fusion is what lights the sun itself. Scientists still seek ways to tame this basic force.

Radioisotopes: Elements that give off radiation form when uranium breaks down, or when other materials are bombarded in an atomic reactor. The Atomic Energy Commission and private industry have put these radioisotopes to work in hundreds of ways. The field is growing so fast that it is estimated a new use crops up every five minutes. Last year they saved United States industry about half a billion dollars.

Radioisotopes are valuable because the radiation they give off can be measured, and they can be tracked as they move about—whether in a watercourse beneath the desert, in the sap of plants, or in the human body.

These tracers are teaching scientists much about the mechanics of plant and animal life. Such basic research may someday offer great medical advances.

WHITE RATS ride an electric train in a medical experiment at Argonne National Laboratory. Strapped to flatcars, they pass under an electron beam to receive measured doses of radiation. New knowledge of cancer results.

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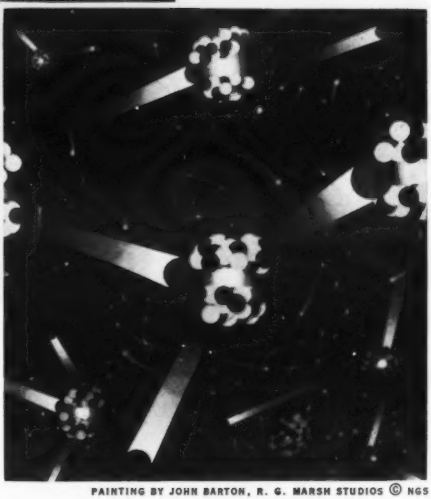
NATIONAL GEOGRAPHIC PHOTOGRAPHER ROBERT F. SISSON

Neutrons streak from uranium atoms to start a fission chain reaction (below). At speeds up to 18,000 miles a second, they strike and split neighboring atoms, whose neutrons in turn break up others. Atomic reactors control this process. In an atomic bomb, fission rages unchecked. A full report on the peaceful atom appears in the September *National Geographic Magazine*.



PAINTING BY JOHN BARTON, R. G. MARSH STUDIOS © NGS

Your Friend The Atom

LOOKING into a greatly enlarged model of a uranium atom, today's students see not just a symbol of destruction and horror, but the foundation of a new age of peaceful development.

As the awesomely powerful atom is harnessed more and more effectively, they can look forward to a day when all life will be changed, made easier and more fruitful.

Many changes already are here. Some dramatic, some little noticed, they affect our homes, factories, farms, transportation, and health.

Here is what the friendly atom offers us:

Electric Power: Heat from atomic reactors already generates electricity for use in some homes and industries. Other communities await conversion.

Ship Propulsion: The recent cruise of two nuclear submarines under North Pole ice highlights the obedient atom's most striking success story. An atomic merchant ship, the svelte *Savannah*, will speed ocean highways by 1960.

Aircraft Propulsion: Planes will have almost limitless range when aircraft-type

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WAVES OF WAR WASH CHINA COAST

A ROUGH, shallow stretch of water beside the flank of Asia holds the attention of the world.

Only 75 miles across at its narrowest, the Formosa Strait separates two Chinas—the massive Communist mainland and the Nationalist island of Formosa.

For 10 years the two powers have threatened each other across the surging waters. Often, violence has flared.

Small islands on the Communist side of the strait remained in Nationalist hands after the retreat to Formosa in 1949. Best known is Quemoy, target of a decade-long artillery barrage. Communist cannon are but five miles away. With its sister island, Little Quemoy, it blocks the harbor of Amoy, an important Communist port and distribution center.

Northward on the rugged coast lies Matsu, another island coveted by the Communists. Like Quemoy, it blocks a Communist harbor, Minhow (Foochow), and has long suffered from mainland artillery.

More important to the defense of Formosa are the Pescadores, a bleak cluster of 64 islands strategically located near Formosa's western shore. Fishing offers a meager livelihood for most of the 80,000 inhabitants.

Formosa itself, shaped like a tobacco leaf, is a third larger than Maryland. Some 9,300,000 persons live there—four times the number in the Old Line State.

The island turns its back to the Pacific where cliffs rise toward peaks that soar more than 10,000 feet. Westward the mountains fall away to terraced slopes and fertile rice plains that roll down to Formosa Strait. Crops grow on nearly every square inch of tillable soil—rice, sugar cane, sweet potatoes, wheat, pineapples, and tobacco. Portuguese visitors in the late sixteenth century so admired the purple hills and lush green vegetation of this land that they called it *Ilha Formosa,* meaning "Beautiful Isle." Chinese know it as Taiwan—"Terraced Bay."

Formosa's past, like its present, is a tale of conquest. The island has been a pirate lair; a colonial outpost of the Dutch, Spanish, and French; and a war base of the Japanese. V-J Day once again saw the return of Formosa to Chinese rule. Since then, Formosa, with United States aid, has gained a standard of living that is high for Asian levels. Nearly every home has electric light; farmers have almost tripled crop production; new industries have sprouted like stands of bamboo.

The Chinese mainland opposite Formosa has historical ties with the West. The cities of Swatow, Amoy, and Minhow were among the early "treaty ports" which opened China to the trade and influence of outside nations in the nineteenth century. From Amoy came the cargo of tea dumped overboard at the Boston Tea Party of 1773.

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Atoms Improve Farms, Light Cities, Attack Disease

Already, radiation is used to control or kill tumors, and to observe the effectiveness of human glands.

Non-medical uses abound. For example, the paper on which this story is printed was manufactured to a precise thickness of 3/1000th of an inch by using a gauge containing radioactive thallium.

It beams rays through the paper coming off the machine. A detector picks up the rays. If they are weaker than they should be, the paper is too thick. Too strong rays indicate too thin paper. Automatic controls then readjust the paper-making machine.

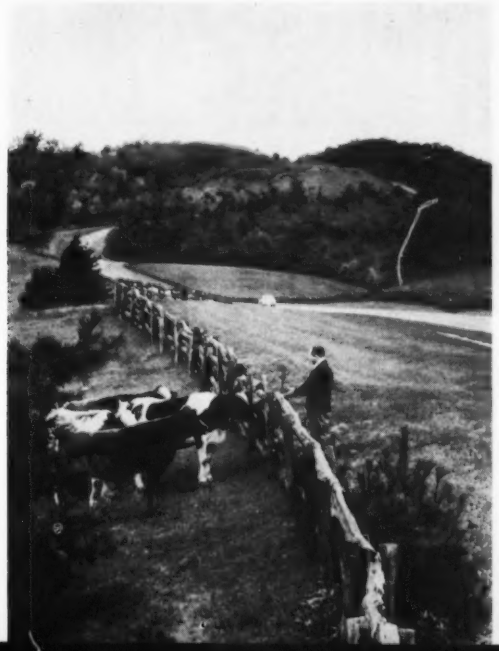
By bombarding plants with powerful rays, scientists have altered the characteristics of their offspring. Most of these "mutants" are valueless. But beneficial results—such as rust-resistant oats and early-yield peaches—have been obtained in some cases. F.S.

THE BEAKER of liquid at right equals 1,000 tons of coal. In an experimental reactor at Oak Ridge National Laboratory the rich uranium solution generates 300 kilowatts of electricity for three months. Before fission, uranium is but mildly radioactive. Gloves are enough protection. While experiment continues, atomic power has moved out of the laboratory. Three atomic plants in the United States produce power for homes and industries. Four are being built; 11 are planned. Atom-given electricity helps light downtown Pittsburgh, Pennsylvania (below).

NATIONAL GEOGRAPHIC PHOTOGRAPHER B. ANTHONY STEWART (TOP); WESTINGHOUSE ELECTRIC CO.

Southern Highlands

VIRGINIA'S MABRY MILL grinds corn by waterpower while you watch—one of Blue Ridge Parkway's many reminders of a vanishing way of life. The scenic road's season extends through October, when fall coloring is best. Food, gas, and camping are available. A lodge at Doughton Park, North Carolina, offers overnight facilities.



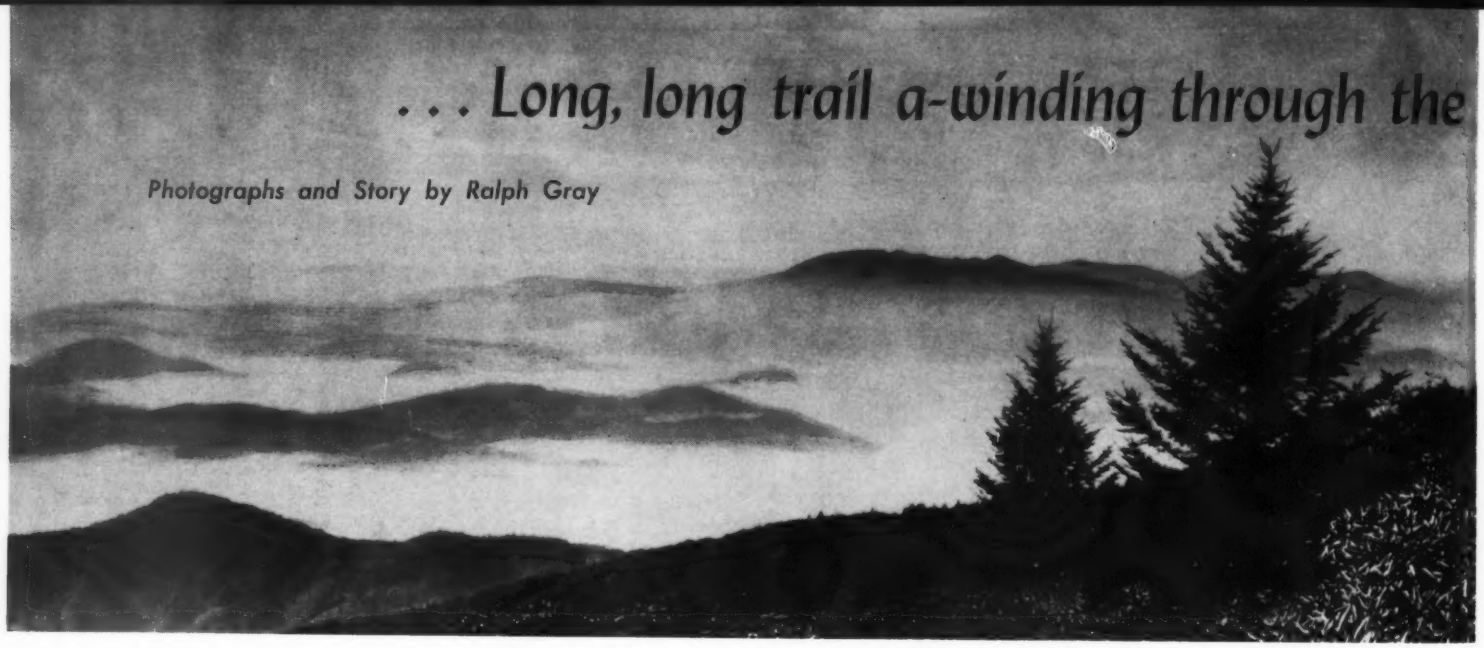
valleys, and sifted through the highlands for livable spots. The log cabins, fences, and orchards they planted still stand beside the Parkway.

Toward the National Park Service, which created the Blue Ridge Parkway, a sense of gratitude grows, for in addition to natural beauty a bygone culture here is preserved and brought to easy view. Following the crest of Virginia's and North Carolina's Blue Ridge Mountains, the Parkway is in effect an asphalt string tieing together the green balloons of Shenandoah and Great Smoky Mountains national parks. Elevations range up to Mt. Mitchell's 6,684 feet above sea level, highest point east of the Mississippi. At the northern terminus, Skyline Drive extends mountaintop driving to within 70 miles of Washington, D. C.

UMI

. . . Long, long trail a-winding through the S

Photographs and Story by Ralph Gray



THEY should put up a sign: "Slow, next 477 miles. Look out for gentle curves, heart-stopping views, and sudden plunges into the 19th century." For this is the Blue Ridge Parkway, an asphalt trail floating skyward out of sea level heat and big city bustle into a cool, quiet other-world of grist-mill vintage and rail-fence tempo.

On second thought, no sign is needed. The Parkway dictates its own mood. No one speeds or blows his horn. Stoplights fade from memory and suddenly you realize: there are no billboards. You've rolled over tens and tens of thousands of miles in the United States and Canada and nowhere found more pleasant continuous driving.

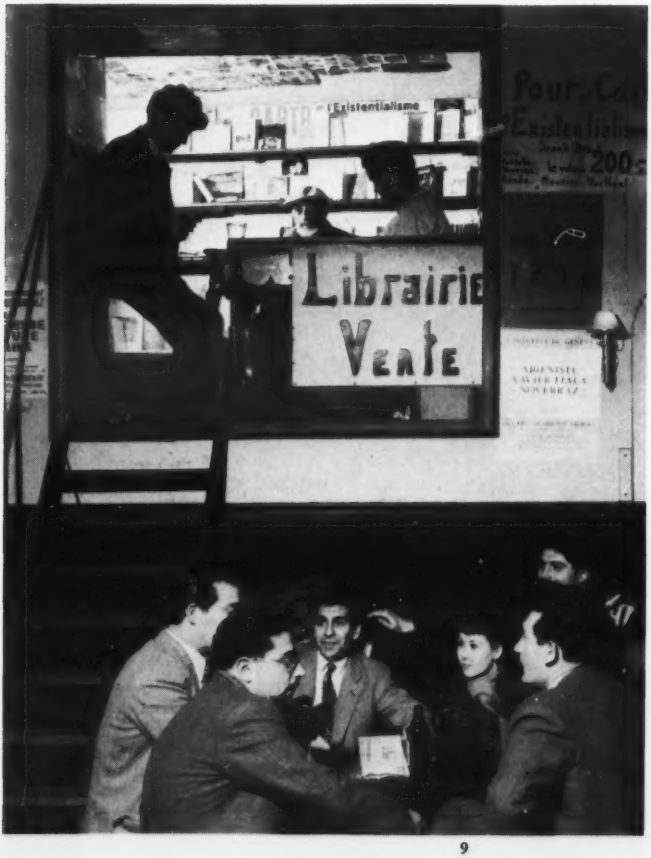
So intimate and removed from daily hub-bub is this highway that you almost forget you're at the wheel. "This is hiking—Detroit style," a fellow motorist tells you at a parking overlook. It's natural to stop often, to get out and walk a bit, or to "loafe, and invite one's soul" under a tulip poplar.

Looking down on clouds, you get to dreaming. The breath of pioneers wafts through these uplands. It was mountain vistas like the one above to whose "beautiful mazes" Davy Crockett once sang farewell. The Boones and the Lincolns and the Houstons and the Clarks passed nearby on the way west. Others stayed, filled up the

PHOTOGRAPHS BY WALTER MEAYERS EDWARDS, NATIONAL GEOGRAPHIC STAFF

THE FRENCH love their families. They also love nature. *Papa* and *Maman* enjoy both by tucking children in a thimble-sized trailer, rolling their bicycles out on the open road.

JUSTIN LOCKE



HIS INGRAINED *laissez faire* attitude allows the Frenchman to pursue the passions many hold in common. Enthusiastic disciples follow every art form: literature, painting, sculpture, architecture, music. Good food and lively conversation seem universal. The café is the national symbol, the haunt of writers, artists, and intellectuals. It provides just the place for young minds to debate such current philosophies as Existentialism. This café on Paris's Left Bank maintains its own lending library, hands out most books between midnight and 2 a.m. Novelists, philosophers, and artists inspire "fan clubs" in France as do Hollywood stars, singers, and baseball players in the United States. A. P. M.

UMI

FRANCE SEEKS NEW COURSE

MILLIONS of Frenchmen like these Parisians strolling the Champs Elysées trooped to the polls last week to vote in France's constitutional referendum. What was required for a stable Fifth Republic, Premier Charles de Gaulle warned the electorate, was a constitution that would enable the French —traditional individualists—to pull together politically.

An attitude of *laissez faire*—"let each do as he chooses"—flavors all French life. Each citizen vociferously defends his own point of view, producing numerous competing political factions. Taxicab drivers wheel their vehicles through the streets with gay abandon. Small, distinctive shops abound. City dwellers will cling to their own familiar *quartiers* rather than move to a strange section of the city. Most farmers proudly till their own small farms, using only family manpower. Sheep from some 30,000 such farms produce the milk to make the distinctive Roquefort cheese of southern France. Skilled taster, left, samples the strength and flavor of cheeses that will soon melt in mouths in Paris, England, and America.

CANADIAN NATIONAL FILM BOARD

DRY FISHING—Nets stretched across mud flats of the Bay of Fundy (below) capture fat shad when the tide sweeps over them. Each wagon trip along the net is a race to get the catch ashore before the next tide boils in and traps the fishermen.

Scotland. Someone once quipped: "So Scottish is Nova Scotia that its Indians are even called Micmacs."

Scottish-born Alexander Graham Bell long summered at Beinn Bhreagh (Beautiful Mountain) overlooking Baddeck Bay on Cape Breton Island. There the telephone's versatile inventor entered researches ranging from the breeding of sheep to pioneer aircraft and hydrofoil speedboats. His associate, John A. D. McCurdy, piloted a plane across the bay's frozen waters in 1909, the first airplane flight in Canada.

In a competitive age, Nova Scotians are mindful of their resources. Along the Bay of Fundy they drained marshes and built Holland-style dikes to increase farm acreage. Harvesting of seaweeds helps the economy. They are used in drugs, food, and fertilizers. The helpful sea yields mackerel, cod, lobster, haddock, halibut, and herring, the earth its coal and salt, some gold, silica, brick clay, limestone, and gypsum. But the pastoral beauties of the sea-clutched fringe, luring thousands of visitors each summer, are the province's dearest resources. S.H.

NOVA SCOTIA BUREAU OF INFORMATION

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'New Scotland' Ages Gracefully

MILLIONS of school children have memorized the lines, "This is the forest primeval, the murmuring pines and the hemlocks . . ." They refer to Nova Scotia, Longfellow's land of Evangeline (statue, right), old enough to celebrate a double bicentennial this year.

Two centuries ago, Britain undermined French power in northern America by seizing Louisburg, Nova Scotia's seaport fortress. Later in 1758, Nova Scotians created the first elective government in Canada by choosing 22 of their people to form an assembly in Halifax, the capital.

Being "first" is taken casually by Nova Scotians. Hill-draped Halifax, with a natural harbor large enough to hold the entire British fleet, had the first public school, printing press, newspaper, dockyard, Protestant church, public garden, and post office in the Dominion.

Soon after the region's settlement by the French in 1605, the explorer Champlain founded North America's first social club—the still-existing "Order of the Good Time"—to ease the boredom of wilderness life. A talented companion, Lescarbot, wrote and produced the continent's first play, a water pageant entitled "Neptune's Theatre."

Thrusting 200 miles into the Atlantic, this "doorstep of a continent" ties to New Brunswick by a strip of tidal meadow. South of this link the heavy tides of the Bay of Fundy scour Nova Scotia's coast. Its 21,068 square miles give it half the area of Tennessee.

None of the province's 700,000 inhabitants live more than 50 miles from the gray sea. With abundant timber for ships, the lures of trade and fish formed the province's 19th-century role. Ships and rigging (below) still add charm to the province.

Like fishing, farming, and forests, charm is a tangible Nova Scotia asset. Lonely fishing villages crouch between the fog-misted coast and green forest. Winter wanderers view enormous pulpwood piles stacked beside frozen streams, awaiting the spring breakup and the drive downstream to mills.

PAUL A. ZAHL, NATIONAL GEOGRAPHIC STAFF

Spruce-scented forests secrete the snowshoe rabbit, white-tailed deer, black bear, beaver, wildcat, red fox, otter, mink, and weasel. Trout and salmon lure anglers; ruffed grouse and water fowl attract hunters. Apple orchards produce enough fruit each year to fill a continuous line of barrels from New York to Chicago.

Indian place names—Chezzetcook, Musquodoboit, Necum Teuch—recall the wandering Micmac Indians who peopled Nova Scotia before white men arrived. Scotland engraved its influence in place names like Glengarry, Argyle, Loch Lomond, Dundee, as well as on the province as a whole. Nova Scotia means New

Cows Graze the Fertile Shores of Nova Scotia's Bras d'Or Lakes

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